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Remarks

MAR 31 2008

Claims 1-25 are pending in the application of which claims 20-24 are withdrawn from consideration.

Claims 1, 4, 10 and 13 are objected to for various informalities.

Claims 1-5, 7-14, 16-19 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Ylitalo (2004/0204111) and Kekki (2005/0286528).

Claims 6 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ylitalo or Kekki in view of Verma et al. (2005/0210154).

Each of the various rejections and objections are overcome by amendments that are made to the specification, drawing, and/or claims, as well as, or in the alternative, by various arguments that are presented.

Entry of this Amendment is proper under 37 CFR 1.116 since the amendment: (a) places the application in condition for allowance for the reasons discussed herein; (b) does not raise any new issue requiring further search and/or consideration since the amendments amplify issues previously discussed throughout prosecution; (c) satisfies a requirement of form asserted in the previous Office Action; (d) does not present any additional claims without canceling a corresponding number of finally rejected claims; or (e) places the application in better form for appeal, should an appeal be necessary. The amendment is necessary and was not earlier presented because it is made in response to arguments raised in the final rejection. Entry of the amendment is thus respectfully requested.

Any amendments to any claim for reasons other than as expressly recited herein as being for the purpose of distinguishing such claim from known prior art are not being made with an intent to change in any way the literal scope of such claims or the range of equivalents for such claims. They are being made simply to present language that is better in conformance with the form requirements of Title 35 of the United States Code or is simply clearer and easier to understand than the originally presented language. Any amendments to any claim expressly made in order to distinguish such claim from known prior art are being made only with an intent to change the literal scope of such claim in the most minimal way, i.e., to just avoid the prior art in a way that leaves the claim novel

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and not obvious in view of the cited prior art, and no equivalent of any subject matter remaining in the claim is intended to be surrendered.

Also, since a dependent claim inherently includes the recitations of the claim or chain of claims from which it depends, it is submitted that the scope and content of any dependent claims that have been herein rewritten in independent form is exactly the same as the scope and content of those claims prior to having been rewritten in independent form. That is, although by convention such rewritten claims are labeled herein as having been "amended," it is submitted that only the format, and not the content, of these claims has been changed. This is true whether a dependent claim has been rewritten to expressly include the limitations of those claims on which it formerly depended or whether an independent claim has been rewritten to include the limitations of claims that previously depended from it. Thus, by such rewriting no equivalent of any subject matter of the original dependent claim is intended to be surrendered. If the Examiner is of a different view, he is respectfully requested to so indicate.

Claim Objections

Claims 1, 4, 10 and 13 are objected to for informalities. In objecting to the claims, the Examiner states that in "[c]laims 1, 4, 10, and 13, the terms 'adapted for' and 'adapted to' are not positively recited limitations." Applicants traverse the objection.

With respect to the objections to claims 1, 4, 10, and 13, Applicants respectfully disagree. Applicants respectfully submit that each of the "adapted for" and "adapted to" limitations limits the scope of the respective claims in that the inter-working gateway (in claims 1, 4, and 13) is adapted in the manner described and the Node-B (in claim 10) is adapted in the manner described. Applicants note that MPEP §2111.04 indicates that such language "may raise a question as to the limiting effect of the language in a claim," not that such language necessarily fails to have a limiting effect. Applicants note that the Examiner has failed to provide any indication as to how use of such language in claims 1, 4, 10, and 13 fails to limit the scope of the claims.

Therefore, the objections should be withdrawn.

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Rejection Under 35 U.S.C. 102

Claims 1-5, 7-14, 16-19 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Ylitalo and Kekki. The rejection is traversed.

Anticipation requires the presence, in a single prior art disclosure, of each and every element of the claimed invention, arranged as in the claim.

Applicants' claim 1 claims a communication system for transporting Internet protocol-formatted communications over a Universal Mobile Telecommunications System (UMTS) wireless communications system that includes a base station, a radio network controller, and an inter-working gateway adapted for interconnection to the radio network controller and the base station. The inter-working gateway is adapted to communicate via Internet transport protocols and UMTS-based transport protocols. The inter-working gateway is further adapted to reformat communications with movable UMTS-based radio-controlled network layer protocols for transport to the radio network controller and to reformat communications with movable Internet radio-controlled network layer protocols for transport to the base station.

Applicants note that the Examiner appears to fail to acknowledge the distinction between transport protocols and radio network layer protocols. Applicants' claim 1 states that the inter-working gateway is adapted to communicate via Internet transport protocols and UMTS-based transport protocols, and, further, that the inter-working gateway is adapted to reformat communications with movable UMTS-based radio-controlled network layer protocols for transport to the radio network controller and to reformat communications with movable Internet radio-controlled network layer protocols for transport to the base station.

Ylitalo fails to disclose each and every element of the claimed invention, as arranged in independent claim 1. Specifically, Ylitalo fails to teach or suggest at least the limitation of "the inter-working gateway being further adapted to reformat communications with movable UMTS-based radio-controlled network layer protocols for transport to the radio network controller and to reformat communications with movable Internet radio-controlled network layer protocols for transport to the base station," as claimed in Applicants' claim 1.

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In the Office Action, the Examiner states "see figure 1 of Ylitalo where the gateway 157 reformat communications between BTS 152 and RNC 146." Applicants respectfully note that Figure 1 of Ylitalo is devoid of any mention of any radio-controlled network layer protocols, much less UMTS-based radio-controlled network layer protocols or Internet radio-controlled network layer protocols. The Examiner fails to cite any portion of Ylitalo that discloses any radio-controlled network layer protocols, much less reformatting communications with movable UMTS-based radio-controlled network layer protocols for transport to the radio network controller or reformatting communications with movable Internet radio-controlled network layer protocols for transport to the base station, as claimed in Applicants' claim 1.

As described in Applicants' specification, Applicants provide many examples of movable UMTS-based radio-controlled network layer protocols and movable Internet radio-controlled network layer protocols. Specifically, Applicants' specification states that "FIG. 5 discloses a set of Internet protocols installed in the IWG 48. The Internet protocols comprise, FPs, OA&M, NBAP, Adaptation, UDP and IP, collectively referred to as movable Internet radio-controlled network layer protocols, , i.e., Internet RNL protocols.... Further, FIG. 5 discloses a set of UMTS protocols installed in the IWG 48. The UMTS protocols comprise FTP, ALCAP, NBAP, TCP/UDP, STC, IP, SSCF-UNI, EPs, LLC-SNAP, SSCOP, AAL2 and AAL5, collectively referred to as moveable radio-controlled network layer protocols, i.e., UMTS, RNL protocols." (Specification, Paragraph 0038 - 0039).

Ylitalo is devoid of any teaching or suggestion of any such protocols, or any other movable UMTS-based radio-controlled network layer protocols or movable Internet radio-controlled network layer protocols, much less reformatting movable UMTS-based radio-controlled network layer protocols for transport to the radio network controller or reformatting communications with movable Internet radio-controlled network layer protocols for transport to the base station, as claimed in Applicants' claim 1.

Thus, Ylitalo fails to disclose each and every element of the claimed invention, as arranged in Applicants' independent claim 1.

Kekki fails to disclose each and every element of the claimed invention, as arranged in independent claim 1. Specifically, Kekki fails to teach or suggest at least the

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limitation of "the inter-working gateway being further adapted to reformat communications with movable UMTS-based radio-controlled network layer protocols for transport to the radio network controller and to reformat communications with movable Internet radio-controlled network layer protocols for transport to the base station" as claimed in Applicants' claim 1.

Rather, although Kekki discloses an interworking function (IWF), Kekki is primarily directed toward providing interworking in the Iur interface between RNCs of a UMTS network. Furthermore, the portions of Kekki which discuss the Iub interface between a Node B and an RNC of a UMTS network state that ALCAP is used for communications in the AAL2 domain and that a user defined information element of ALCAP is used for communications in the IP domain. Kekki is devoid of any teaching or suggestion of interworking between radio network layer protocols as claimed in Applicants' claim 1. As such, Kekki fails to teach or suggest each and every element of Applicants' claim 1, as arranged in claim 1.

Furthermore, Applicants note that Kekki repeatedly states that interworking is performed using ALCAP and a user defined information element of ALCAP (namely, the Served User Transport (SUT) Information Element (IE)). As described in Kekki, ALCAP is used for communications in the AAL2 domain and the user defined information element of ALCAP is used in the IP domain and, thus, that there is no need for radio network layer interworking. This is clearly illustrated in Figure 4 of Kekki which discloses (at the top of the figure) that the radio network layer (RNL) communication between the AAL2 UTRAN node and the IP UTRAN node does not traverse the interworking function. This is supported in many places within the text of Kekki, some of which follow.

First, Kekki states that "[f]urther the invention is based on the idea that the existing ALCAP, e.g. Q.2630 is used not only in the ATM/AAL2 domain as an ALCAP, i.e. no changes to the existing specifications, but also as an auxiliary control protocol in the IP transport domain. This is accomplished by using a user defined information element of said existing ALCAP....In one example it is implemented by extending the capabilities of Q.2630 by utilising its Served User Transport (SUT) Information Element. The SUT is an optional information element in the Establish request message of Q.2630

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that can convey any information transparently from one AAL2 served user to another (the peer AAL2 served user).” (Kekki, Para. 0019, Emphasis added). In other words, Kekki discloses that ALCAP is used in the AAL2 domain and in the IP domain (using the SUT IE), such that interworking for RNL protocols is not required.

Second Kekki states that “[w]hen implementing a new type of transport layer protocol, there is no need for a new ALCAP protocol. Instead of it the existing ALCAP, i.e. Q.2630 in one example can be used also in the new protocol, e.g. IP, side. Signalling bearer for Q.2630 over IP is already available in Release 99. Further only a subset of an existing ALCAP (Q.2630) needs to be implemented in the IP based RAN nodes, thus reducing the inter-working overhead there, and only minor changes in the existing ATM/AAL2 network Elements are needed.” (Kekki, Para. 0020, Emphasis added). In other words, again, Kekki discloses that a subset of ALCAP is used in IP based RAN nodes. Kekki is devoid of any teaching or suggestion of interworking between radio network layer protocols.

Third, Kekki states that “[f]urther there is no need for Radio Network Layer inter-working as the standard RANAP/RNSAP/NBAP without any new Information Elements can be used. Inter-working function can be implemented and used solely in the Transport Network Layer.” (Kekki, Para. 0021, Emphasis added). This is also demonstrated by Figure 4 of Kekki, as described hereinabove, and is further supported by Kekki, which also states that “...the IWF terminates the Q.2630 from both sides and is acting as an AAL2 served user. The Radio Network Layer signalling does not have to go via the IWF at all. This is one of the benefits of the present invention. On ATM/AAL2 side the Q.2630 is used exactly in the same way as it has been specified in 3GPP UTRAN specifications so far. On IP side only the SUT (Served User Transport) Information Element and its contents as well as the Binding ID (B-ID) are relevant for the UTRAN IP node.” (Kekki, Para. 0031 – 0032, Emphasis added). In other words, the IWF is an AAL2 served user from both sides, i.e., from both the AAL2 UTRAN node and the IP UTRAN node, such that the IWF does not operate on RNL signaling.

From the cited portions of Kekki, it is clear that Kekki is directed toward preventing any interworking of radio network layer (RNL) protocols by reusing a subset

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of ALCAP in the IP based RAN nodes, in addition to using ALCAP in the AAL2 domain of the RAN.

Thus, since Kekki discloses that the IWF uses ALCAP in both the AAL2 domain and the IP domain in order to prevent any need for interworking between radio network layer protocols, Kekki actually teaches away from Applicants' claim 1, in which interworking is provided between radio network layer protocols (i.e., the limitations of "the inter-working gateway being further adapted to reformat communications with movable UMTS-based radio-controlled network layer protocols for transport to the radio network controller and to reformat communications with movable Internet radio-controlled network layer protocols for transport to the base station," as claimed in Applicants' claim 1).

Applicants now address the remaining portions of Kekki.

Paragraphs 0034 – 0037 describe four cases that are described in detail in the remaining portions of the text of Kekki.

Paragraphs 0034 and 0035 describe cases associated with the Iur interface between two RNCs. The situation mentioned in Paragraph 0034 is described in greater detail in Paragraphs 0039 – 0041 of Kekki. The situation mentioned in Paragraph 0035 is described in greater detail in Paragraphs 0042 – 0043 of Kekki. Applicants respectfully note that, since Applicants' claim 1 is directed toward interworking between a base station and a radio network controller, these cited teachings of Kekki (namely, Paragraphs 0034, 0035, and 0039 – 0043) regarding interworking in the Iur interface between two radio network controllers do not apply to Applicants' claim 1.

Paragraph 0037 describes a case associated with the Iub interface between a base station and a radio network controller. The situation mentioned in Paragraph 0037, however, covers the case in which the Iub interface is between an IP radio network controller and an AAL2 base station. By contrast, Applicants' claim 1 is directed toward interworking between a UMTS-based radio network controller and an IP-based base station. Thus, since the situation mentioned in Paragraph 0037 is described in more detail in Paragraphs 0047 – 0048 of Kekki, these portions of Kekki do not apply to Applicants' claim 1.

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The remaining paragraph, Paragraph 0036, describes another case associated with the Iub interface between a base station and a radio network controller, and covers the case in which the Iub interface is between an AAL2 radio network controller and an IP base station. However, as described hereinabove, Kekki discloses that ALCAP is used in the AAL2 domain and that a subset of ALCAP is used in the IP domain. This is again reflected in the portions of Kekki which further describe the case mentioned in Paragraph 0036 (namely, Paragraphs 0044 – 0046). Specifically, these portions of Kekki further describe use of the SUT IE in the IP domain and, thus, teach away from providing interworking between radio network layer protocols.

Thus, each portion of Kekki is devoid of any teaching or suggestion of the limitations of “the inter-working gateway being further adapted to reformat communications with movable UMTS-based radio-controlled network layer protocols for transport to the radio network controller and to reformat communications with movable Internet radio-controlled network layer protocols for transport to the base station,” as claimed in Applicants’ claim 1.

Thus, Kekki fails to disclose each and every element of the claimed invention, as arranged in Applicants’ independent claim 1.

As such, independent claim 1 is not anticipated by either Ylitalo or Kekki and is patentable under 35 U.S.C. 102. Independent claims 19 and 25 recite relevant limitations similar to those recited in independent claim 1 and, as such, for at least the same reasons discussed above, claims 19 and 25 are also not anticipated by Ylitalo or Kekki and are patentable under 35 U.S.C. 102. Furthermore, since all of the dependent claims that depend from the independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Ylitalo or Kekki.

Therefore, Applicants’ claims 1-5, 7-14, 16-19 and 25 are allowable over both Ylitalo and Kekki under 35 U.S.C. 102. The Examiner is respectfully requested to withdraw the rejection.

Rejection Under 35 U.S.C. 103(a)

Claims 6 and 15

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Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ylitalo or Kekki in view of Verma. The rejection is traversed.

This ground of rejection applies only to dependent claims, and is predicated on the validity of the rejection under 35 U.S.C. 102 given Ylitalo and Kekki. Since the rejection under 35 U.S.C. 102 given Ylitalo and Kekki has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that Verma supplies that which is missing from Ylitalo and Kekki to render the independent claims anticipated, this ground of rejection cannot be maintained.

Therefore, Applicants' claims 6 and 15 are allowable over Ylitalo or Kekki in view of Verma under 35 U.S.C. 103. The Examiner is respectfully requested to withdraw the rejection.

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Conclusion

It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, the Examiner is invited to call Michael Bentley or Eamon Wall at (732) 530-9404 so that arrangements may be made to discuss and resolve any such issues.

Respectfully submitted,

Dated: 3/31/08



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